Physics dept

CONTENTS

SECTION A—VOL. XXXVII

PAGE

No. 1—January 1953

The Diffusion Haloes of the Iridescent Feldspars . . . . . Sir C. V. Raman and A. Jayaraman 1

Studies in the Chemical Behaviour of Some Compounds of Sulphur. Part IV. Reaction Between Hydrogen Iodide and Some Esters of Oxy-Acids of Sulphur . . . . . A. R. Vasudeva Murthy 11

Studies in the Chemical Behaviour of Some Compounds of Sulphur. Part V. Reaction Between Hydrogen Iodide and Chlorine Compounds of Sulphur . . . . . A. R. Vasudeva Murthy 17

Studies in the Chemical Behaviour of Some Compounds of Sulphur. Part VI. The Reaction Between Hydrogen Iodide and Some Compounds of Sulphur . . . . . A. R. Vasudeva Murthy 23

Quantitative Determination of Copper, Cuprous Oxide and Cupric Oxide in a Mixture . . . . . S. M. Mehta and N. R. Bharucha 29

Studies in Iron Oxide Sols. Part II. Membrane Equilibrium in Iron Oxide Sol . . . . . A. K. M. Trivedi and A. S. Divatia 33

The Preparation of the Double Sulphates of Tin and Certain Bivalent Metals . . . . . S. R. Patel 38

Theory of Image Formation in Combinations of X-Ray Focussing Mirrors . . . . . Y. T. Thathachari 41

Kinetics of Inactivation of Invertase . . K. S. G. Doss and H. C. Saraswat 63

Studies in Soil Permeability. Part I. The Effect of Heating the Soil on Permeability Under Prolonged Submergence of Soil in Water . . . . . K. Subba Rao and S. K. Wadhawan 68

Naphthoquinone Series—Part I. Brazanquinone Vat Dyes from 2: 3-Dichloro-1: 4-Naphthoquinone: Part I. Constitution of "*iso*-Dinaphthalene Oxide" . . . . . B. Suryanarayana and B. D. Tilak 81

Naphthoquinone Series—Part II. Brazanquinone Vat Dyes from 2: 3-Dichloro-1: 4-Naphthoquinone: Part II . . . . . V. K. Dikshit, B. Suryanarayana and B. D. Tilak 92

Naphthoquinone Series—Part III. Brazanquinone Vat Dyes from 2: 3-Dichloro-1: 4-Naphthoquinone: Part III . B. Suryanarayana and B. D. Tilak 99

PAGE

Synthetic Experiments in the Benzopyrone Series. Part XX. Hydrogen Peroxide Oxidation of Some α-Methoxy Chalkones and Synthesis of Some Partial Methyl Ethers of Quercetin . . . . . N. Narasimhachari, S. Narayanaswami and T. R. Seshadri 104

Sulphur Isosters of Carcinogenic Hydrocarbons. Part II. 6: 12-Dimethylbenzo (1: 2-*b*, 5: 4-*b'*)dithionaphthene and Thionaphtheno(4: 5: 4′: 5′)thionaphthene . . . . . V. V. Ghaisas, K. Rabindran and B. D. Tilak 114

Ratio of κ- to π-Mesons on Fermi's Theory . . . . . D. S. Narayan 120

Synthetic Experiments in the Benzopyrone Series. Part XXI. Isomerisation of C-(6 or 8)-methyl-5: 7-dihydroxy Chromones . . . . . S. K. Mukerjee, T. R. Seshadri and S. Varadarajan 127

Synthetic Experiments in the Benzopyrone Series. Part XXII. A Synthesis of 8-Methyl Genistein . . . . T. R. Seshadri and S. Varadarajan 145

Equidistance and Parallelism of the Congruences of Curves Through Points of a Subspace . . . . . R. S. Mishra 159

No. 2—February 1953

Dr. K. R. Ramanathan on His Sixtieth Birthday . . . Sir C. V. Raman 167

Polar and Tropical Auroræ: and the Isoauroral Diagram . Sydney Chapman 175

On the Vertical Eddy Flux of Momentum in the Trade-Wind Zone . . . . . E. Palmén 189

Temperature Moyenne de L'ozone Atmospherique . . . . . E. Vassy et Mme. A. Vassy 195

Comments on the Vorticity Equation . . . . Jacques-M. Van Mieghem 204

La Résonance Interne du Jet-Stream et Son Rôle Dans la Formation des Cyclones . . . . . P. Queney 213

A New Radio Theodolite—Preliminary Communication . . Vilho Väisälä 223

On the Dynamics of the Indian Monsoon . . . . . Sverre Petterssen 229

On a Classification with Regard to Daily Radiation Income from Sun and Sky . . . . . Anders Ångström 234

A Rational Approach to Rain Making . . . . . Horace R. Byers 237

A New High-Speed Recording Technique for Use with Infra-Red Spectroscopes . . . . . A. U. Momin 248

The Infra-Red Spectrum of Magnesium Oxide Between 1 and 21 Microns . . . . . A. U. Momin 254

On the Measurement of the Electrical Potential Gradient in the Upper Air Over Poona by Radiosondes . . . . . S. P. Venkiteshwaran, N. C. Dhar and B. B. Huddar 260

PAGE

Spectrophotometric Study of Sunspots . . . . . R. Ananthakrishnan 268

Meteorological and Extra-Terrestrial Causes of the Daily Variation of Cosmic Ray Intensity . . . . V. Sarabhai, U. D. Desai and R. P. Kane 287

Convective Phenomena Near a Heated Surface . . . . . L. A. Ramdas 304

East-West Asymmetry of Cosmic Rays . . . . . D. S. R. Murty 317

Height Distribution of Atmospheric Ozone . . . . . K. R. Ramanathan and R. N. Kulkarni 321

No. 3—March 1953

A New Radiation . . . . . Prof. C. V. Raman 333

The Molecular Scattering of Light. Nobel Lecture Delivered at Stockholm, 11th December 1930 . . . . . Sir C. V. Raman 342

Twenty-five Years of Research on the Raman Effect . . . S. Bhagavantam 350

The Scattering of Light in Fused Quartz and Its Raman Spectrum . . . . . R. S. Krishnan 377

Phase Reciprocity Relation in Light Scattering . . . N. L. Ramanathan 385

Raman Spectra of Crystalline Sulphates of Zinc, Magnesium and Sodium . . . . . C. Shantakumari 393

Raman Spectra of Crystalline Acetates (Sodium, Magnesium and Barium) . . . . . V. M. Padmanabhan 401

Temperature Variation of the Raman Spectrum of Topaz . R. Srinivasan 405

Raman Spectrum of Rutile—Polarisation Studies . . . P. S. Narayanan 411

Raman Spectrum of Crystalline Ammonium Hydrogen Malate . T. S. Krishnan 415

Light Scattering in Gold Sols . . . . . S. R. Sivarajan 418

The Characteristic Vibrations of Crystal Lattices—Part I . . . . . K. S. Viswanathan 424

The Characteristic Vibrations of Crystal Lattices—Part II . . . . . K. S. Viswanathan 435

The Infra-Red Absorption Spectra of Sodium Nitrate and Calcite . . . . . A. K. Ramdas 441

The Infra-Red Absorption Spectra of Sodium Chlorate and Potassium Chlorate Crystals . . . . . A. K. Ramdas 451

A Redetermination of the Rotatory Dispersion of Sodium Chlorate . . . . . S. Chandrasekhar 458

Theoretical Interpretation of the Optical Activity of Quartz . . . . . S. Chandrasekhar 468

Illustrations of Raman Spectra with Descriptive Notes . . A. Jayaraman 485

PAGE

No. 4—April 1953

Ist das Diracsche Verfahren der Linearisation Notwendig ? . V. S. Vrkljan 491

Raman Effect in Mixtures of Acetone with Alcohols. Hydrogen Bond Formation . . . . . P. G. Puranik 499

A New Volumetric Method of Cerium Determination by Thiocyanate . . . . . G. S. Deshmukh and B. R. Sant 504

Synthetic Experiments in the Benzopyrone Series. Part XXIII. A New Synthesis of 8-Methyl Genistein . . . T. R. Seshadri and S. Varadarajan 508

Synthetic Experiments in the Benzopyrone Series. Part XXIV. A Synthesis of Isogenistein . . . . . T. R. Seshadri and S. Varadarajan 514

Synthetic Experiments in the Benzopyrone Series. Part XXV. Isomerisation of 5 : 7 : 8-Hydroxy Flavanones . . . . . Ishwar-Dass, N. Narasimhachari and T. R. Seshadri 520

Synthetic Experiments in the Benzopyrone Series. Part XXVI. A Synthesis of 8-Methyl Isogenistein . . . T. R. Seshadri and S. Varadarajan 526

Synthetic Experiments in the Benzopyrone Series. Part XXVII. A Note on the Synthesis of Santal . . N. Narasimhachari and T. R. Seshadri 531

Expériments on the Synthesis of Coumaryl Styrenes . . . . . (Miss) L. Ponniah and T. R. Seshadri 534

Nuclear Oxidation in Flavones and Related Compounds. Part XLII. A Synthesis of 6-Hydroxy Pyrylium Salts of the Gesneridin Type . . . . . (Miss) L. Ponniah and T. R. Seshadri 544

Dipole Moments of Camphor Compounds—Part I . . P. T. Narasimhan 551

Thiophenes and Thiapyrans. Part IX. Studies in the Dehydrogenation of 1 : 2: 3: 4-Tetrahydrodibenzothiophene. K. Rabindran and B. D. Tilak 557

Thiophenes and Thiapyrans. Part X. 1: 2-Benzo-9-thiafluorene and 3: 4-Benzo-9-thiafluorene . . . . . K. Rabindran and B. D. Tilak 564

The Infra-Red Absorption Spectrum of Silicon Carbide . A. K. Ramdas 571

Dipole Moments of Tetrahydropyran and Dihydropyran . . . . . Sundaresa Soundararajan and S. V. Anantakrishnan 578

No. 5—May 1953

Photo-Elastic Behaviour of Cubic Crystals. New Methods of Distinguishing Between Different Classes . . . . . S. Bhagavantam 585

Photo-Elastic Behaviour of Cubic Crystals. Displacement of Principal Axes Caused by Linear Stresses . . S. Bhagavantam and K. V. Krishna Rao 589

Partial Methyl Ethers of Polyhydroxy Coumarins. Part I. Partial Methylation of 5 : 7-Dihydroxy-4-Methyl Coumarin . . . . . P. L. Sawhney and T. R. Seshadri 592

PAGE

A New Effect of Hydrogen Bond Formation. Part V. A Note on the Behaviour of the 8-Hydroxyl Group in Benzopyrone Derivatives . . . . . Ishwar-Dass, N. Narasimhachari and T. R. Seshadri 599

Nuclear Oxidation in Flavones and Related Compounds. Part XLIII. The Preparation and *p*-Oxidation of Flavones Analogous to Datiscetin and Morin . . . . . S. R. Gupta and T. R. Seshadri 611

A New Effect of Hydrogen Bond Formation (Chelation). Part VI. Synthesis of 5-Hydroxy-2′-methoxy-flavanone and 5 : 7-Dihydroxy-2′-methoxy flavanone . . . N. Narasimhachari, D. Rajagopalan and T. R. Seshadri 620

Synthetical Experiments in the Chromone Group. Part XXVII. Coupling of 5-Hydroxyflavone, 5-Hydroxy-6-methoxyflavone and Tectochrysin with Diazotized Aniline. New Synthesis of 5: 6-Dihydroxyflavone, Baicalein, and 5: 6: 8-Trihydroxyflavone. . . R. N. Iyer and K. Venkataraman 629

Chemotherapy of Malaria. Part VII. Phenylene-Diguanidine Derivatives . . . . . K. Ganapathi and B. S. Kulkarni 643

Chemotherapy of Malaria. Part VIII. Synthesis of Uracils, Thiouracils, Pteridines and Thiopteridines . . K. Ganapathi and B. N. Palande 652

Synthetical Experiments in the Chromone Group. Part XXVIII. Synthesis of 6-Hydroxy-5 : 7-Dimethoxyisoflavone and 5: 6: 7-Trihydroxyisoflavone . . . . . S. S. Karmarkar, K. H. Shah and K. Venkataraman 660

On the Characteristic Method for Unsteady Compressible Flow . . . . . S. N. B. Murthy 664

Nuclear Oxidation in Flavones and Related Compounds. Part XLIV. New Synthesis of Polyhydroxy Coumarins and A Note on Trimethyl Dihydro-Psoralene . . . V. D. Nageswara Sastri, N. Narasimhachari, P. Rajagopalan, T. R. Seshadri and T. R. Thiruvengadam 681

The Optical Rotatory Dispersion of Cinnabar . . . . S. Chandrasekhar 697

No. 6—June 1953

A New Effect of Hydrogen Bond Formation (Chelation). Part VII. Hydrogen Peroxide Oxidation of Some 2′-Substituted Chalkones and Flavanones. . . . . N. Narasimhachari, D. Rajagopalan and T. R. Seshadri 705

Synthetic Experiments in the Benzopyrone Series. Part XXX. A New Synthesis of Hydroxy Xanthones Including Gentisein and Gentisin . . . . . G. Venkat Rao and T. R. Seshadri 710

Survey of Anthoxanthins—Part II . . . . . (Miss) K. S. Pankajamani and T. R. Seshadri 718

Amphibolite-Granulite Facies Charnockites . . . . T. N. Muthuswami 730

PAGE

Dipole Moments of Camphor Compounds. Part II. The Dipole Moments of dl-Borneol, Camphoric Acid and 3-Bromo-Camphorenic Acid . . . . . P. T. Narasimhan and S. V. Anantakrishnan 747

Chondrodite from the Calc-Silicate Rocks of Latehar, Palamau District . . . . . M. S. Sadashivaiah and S. D. Ghosh 752

Chemistry of the Thiazoles. IV. Bromination and Nitration of Some Mono-substituted Thiazoles . . . . K. Ganapathi and K. D. Kulkarni 758

γ-Substitution in the Resorcinol Nucleus. Part XI. Friedel and Crafts Acylation of 4-Nitroresorcinol . . . . . R. M. Naik, V. M. Thakor and R. C. Shah 765

Chromones. Part III. Kostanecki-Robinson Acylation of Some Ortho-Hydroxyacetophenones . . . . R. M. Naik and V. M. Thakor 774

Synthetic Experiments in the Benzopyrone Series. Part XXXI. A Synthesis of 7-Hydroxy-chromeno-(3′: 4′: 2: 3)-Chromone . . . . . T. R. Seshadri and S. Varadarajan 784

A Compound of 2: 6-Dimethoxy Quinone and Acetone . . . . . K. Aghoramurthy, K. Visweswara Rao and T. R. Seshadri 798